



*Task Force Cobra soldiers fill sandbags to fortify a U.S. Patriot emplacement inside Israel. (Photo by Spc. Kris Steward.)*

# Task Force Cobra

## Two-Tiered Missile Defense Shields Israel Against Missile Strikes

by Specialist Kris Steward

By December 2002, the build up of American troops had mushroomed in Kuwait and the clouds of war hovered over neighboring Iraq. Beyond the western horizon, Israel prepared for another showdown with Saddam Hussein.

Fearing they would be the prime target for his wrath, Israelis braced themselves against a repeat attack of tactical ballistic missiles, Hussein's preferred instruments of terror during the first Gulf War.

But Israel's top leaders had already vowed to never again be bullied by this tyrant, whose surface-to-surface missiles may have killed few, but hurt Israel's pride.

Prime Minister Ariel Sharon assured his people Israel would strike back if provoked by Iraqi aggression this time around. "If, God forbid, Israel is attacked, Israel will know how to defend itself."

Even though Hussein's regime no longer had the manpower, equipment and quantity of missiles it had stockpiled more than a decade earlier, Iraq's knowledge of weapons of mass destruction had grown. Israel's chief military officers, along with U.S. air defenders, saw this growing threat and created a theater missile defense to protect the Holy Land from a possible shower of Scuds.

"We know that Saddam Hussein has only a very low capacity for launching missiles," said Brigadier General Yair Dori, head of the Israel Air Defense forces, in March. "But he will probably try to do it, and we have to be ready for that."

After 39 Iraqi Scuds bombarded Israel in 1991, the U.S. and Israel recognized the Jewish state "needed a multi-tier system, both in terms of intercepting missiles and in terms of early warning, said Maj. Gen. Stanley E. Green, commanding general of the United States Army Air Defense Artillery Center and Fort Bliss. Ever since, American forces "have worked hard with the Israelis to establish the tactical and technical procedures to create as close to a leak proof defense system" as they could possibly get.

Consequently, the Israeli missile defense system evolved from a single tier to the only operational two-tier system in the world. "In 1991 we had almost nothing, so we started building an active defense. After 10 years we've got a very robust two-layer defense," Dori said. "I have complete confidence in the system."

This new missile defense shield merged the U.S. Patriot MIM-104 with Israel's Arrow Weapon System.

“The difference between the Patriot and the Arrow is that the Arrow identifies and engages the missile in the upper layer of the atmosphere, where as the Patriot does so in the lower layer,” said Dori. “Both protection systems work simultaneously in order to provide maximum defense.”

The terminally-guided, Arrow-2 missile system can detect a TBM as far away as 500 kilometers and destroy it at distances greater than 40 kilometers out. The command guided, Patriot Advanced Capability 2 (PAC-2) Patriot missile can detect an incoming missile within 70 to 160 kilometers, and is able to destroy it within three to 24 kilometers from the earth’s surface. This separation of engagements allows for the optional employment of lower-tier systems, such as the Patriot, where system crew reaction time is minimal.

Though the Arrow and Patriot are two very different missile systems, it is critical that they are compatible enough to speak to each other and see the same air picture, said Col. Pini Yungman, commander of the Israel Air Force’s 167th Brigade.

“If you only have one stand-alone system, you must depend on one battery to detect and kill an incoming mis-



*Brig. Gen. Yair Dori uses an Arrow missile for a backdrop during a press conference.*

sile,” said Yungman. “But if the systems are integrated and everybody sees the same picture, commanders can decide who has the best capability to deal with the threat. If you have a full air picture, you’re alert before you even see the TBM, which allows you to save valuable minutes. The more we’re integrated, the more efficient we will be.”

“These concepts have been well understood in the U.S. TMD [Theater Missile Defense] forces for some time,” said Col. Roger F. Mathews, commander of the 69th Air Defense Artillery Brigade, headquartered in Giebelstadt, Germany. “Given the nature of the growing TBM [Tactical Ballistic Missile] threat, we have realized the need to have the right system available to engage a target regardless of what

service or country it belongs to. This realization is the key driver in today’s concept of a Joint Engagement Zone where a Joint Force Commander can rely on several weapons systems to engage a target. This family of systems provides great flexibility to the commander and ensures timely engagement at the greatest distance possible.”

To test the interoperability between the American and Israeli air defense systems, 600 soldiers, sailors, airmen and civilians commanded by Green, with Mathews as the Joint



*69th ADA Brigade soldiers take shelter during a simulated ballistic missile attack. (Photo by Spc. Kris Steward.)*





*U.S. and Israeli air defenders discuss intricacies of the Patriot-Arrow interface. (Photo by Spc. Jason Goldsmith.)*

Chief of Staff, traveled to Israel to conduct a joint simulations exercise with the Israeli Defense Forces in January.

Exercise Juniper Cobra '03 consisted of three phases: movement to occupy battle positions, a command post exercise (CPX) / computer-assisted exercise (CAX) that incorporated simulation of tactical ballistic missile threats with the Cooperative Air and Missile Defense Network, and a Patriot live fire.

Not only did the exercise participants get to test the missiles, but they also had the opportunity to train for scenarios envisioned as real possibilities at the onset of Operation Iraqi Freedom. Simulation support for the exercise, provided by the Germany-based Warrior Preparation Center in conjunction with the Missile Defense Agency, helped replicate TBM threats for U.S. and Israeli crews to engage.

Luke Schiffner, exercise director, said Juniper Cobra '03 was unique to other exercises. "This is the first time that I have done an exercise in a foreign country that included training U.S. forces on the land and at sea."

The U.S. Navy provided a joint interface control officer to establish a link distribution computer-generated air picture among the U.S. Navy Aegis class cruiser, the Patriot batteries and the Arrow system.

Juniper Cobra '03, a U.S. European Command exercise, was largely equipped and manned by U.S. Army Europe, with Headquarters and Headquarters Battery, 69th ADA Brigade, serving as the Joint Task Force (JTF) headquarters and the 5-7 ADA playing the principle fighting organization. U.S. airmen and sailors played critical roles not only in terms of deploying forces into the theater, but also by serving in key staff positions, making this a true joint exercise.

"As part of the exercise, we practiced a quick deployment of the American anti-aircraft forces from an Israeli Air Force base in the southern part of Israel to sites where they will be located in case of a missile attack," said Lt. Col. Doron Gavish, the Israeli chief planner and organizer of the exercise.

"There are few times in history you get to train at a potential war site," said Maj. Robert Wade, JTF operations officer, in January when the exercise kicked off. "It's a rare opportunity."

The chance of a lifetime turned into reality for JTF Cobra soldiers who extended their stay in February, moving to the actual sites in which they had just rehearsed, to keep a vigil over Israel as their brethren engaged in war in the Gulf.

"We essentially conducted JC '03 as a mission rehearsal exercise," said Mathews. "We couldn't have been more fortunate in our preparations for war."

Soldiers of 5-7 ADA moved missiles, each weighing about two tons, along city streets and across urban terrain to battle positions around central Israel. The city environment presented unforeseen problems rarely encountered by these air defenders who are accustomed to deploying to the wooded fields of Germany and the barren deserts of the Gulf.

Because tensions between the Israelis and Palestinians naturally amplified fears of terrorist attacks in the region, and encountering anti-American war protesters was always a possibility, commanders were compelled to step up force protection measures as Patriot missile batteries convoyed to and from different battle positions. Once in place, security for both personnel and equipment became the number one concern.

A jagged skyline played a leading antagonist in the set up at most sites. Tall buildings hindered signal transmissions and sacred structures, like a town mosque, made positioning of Patriots a challenge, to say the least.

Spc. Justin Wiessert, a multi-channel transmissions radio operator, of E Battery, 5-7 ADA, said he became all too familiar with obstacles 5-7 ADA encountered. He said buildings blocked antenna shots, UHF radio frequencies caused communications interference, and Mother Nature wreaked havoc on the equipment.

“Wind and weather create big problems,” said Wiessert, as he explained how winds in the area had reached speeds up to 64 knots, or 74 miles per hour. Winds that ferocious spit sand from the coastline, and even the finest grains caused the same battering affect as hail. Salt carried from the Mediterranean Sea gnawed at the equipment, throwing a wrench in the schedules of the maintenance crew who, because of it, had to do their preventative checks more frequently.

1st Lt. Michelle Timajo, launcher platoon leader for E Battery, 5-7 ADA, and range officer in charge of one site, emphasized that when Patriot launcher maintenance crews, AKA ‘hot crews,’ were sent down range to work on the launchers, safety was critical.

“When a live missile is down range, anything can happen,” said Timajo, who said she enforced strict safety procedures to prevent injuries and something as devastating as friendly fire. “Anytime a crew needs to move downrange, they have to call me. We don’t need anybody around live birds. If they don’t need to be there, I don’t let them go.”

Timajo deployed to Israel in December as part of the JC ’03 advanced party. She said the exercise offered realis-



*A series of Patriot missile live fires served as the climax to Exercise Juniper Cobra 2003. (Photo by Spc. Kris Steward.)*

tic training with well thought out scenarios she and her crew could react to, scenarios dealing with issues such as communications loss, working while wearing Nuclear, Biological and Chemical (NBC) gear and TBM debris management.

Neither the Arrow-2 nor the PAC-2 are designed to “hit-to-kill,” but both contain warheads that are detonated by a proximity fuse. A “proxy kill” allows for either missile to destroy TBM’s through fragmentation rather than a direct hit.

“When the missile blows up, it shoots a ton of metal cubes that literally rip up everything in its path,” said U.S. Army Chief Warrant Officer 4 Donald Hendricks, officer in charge of the live fire exercise.



*Hooah! Soldiers of the 5th Battalion, 7th Air Defense Artillery show their enthusiasm as they prepare for the first launch of a Patriot missile during the live-fire portion of Exercise Juniper Cobra 2003. (Photo by Spc. Kris Steward)*





*At left, a 69th ADA Brigade convoy on the move inside Israel. At right, Arrow missile batteries provide the upper tier of the two-tiered missile defense that defended Israel during Operation Iraqi Freedom..*

“Because the Arrow causes debris very low in atmosphere, a Patriot may need to be fired as well,” said Green. “That causes a concern about wasting missiles, so air defenders must learn to distinguish between debris the Arrow creates and a warhead that could still penetrate the shield.”

To lessen the amount of debris from a possible attack, U.S. forces must attempt to engage the missile where debris fallout is less of a concern, thus the need for a two-tier defense. And if a missile is headed outside of the urban area, for instance toward the sea or a desolate area, it is not fired upon at all.

“Why fire a million dollar missile if it’s only going to kill a cactus?” asked 1st Lt. Amanda Clare, fire control platoon leader, E Battery, 5-7 ADA.

“It’s all about making civilians feel safe,” said Spc. Tony Russell, assistant section chief of the engagement control station of fire control for E Battery, 5-7 ADA. “Israel is one of our most important allies in the Middle East. We want them to know we’re here to help them.”

“If we had not been here, Israel would have been a very lucrative target in the form of uncovered populations,” said Green. “America’s commitment to defend Israel is a sign of our commitment to the region as well as a sign of maintaining a multi-tier defense as a requirement for population protection.

“I am terribly proud of our soldiers and of the systems that they worked so hard to keep operational in defense of the Israeli population and our own maneuver forces in the Gulf,” said Green. “Our mission here was to act as a deterrent, and that is what we have done. Our presence here

allowed General Franks to focus the efforts of the Special Operations forces on Baghdad. The Special Operations forces could focus minimally on the West because we were here.”

“Even though we didn’t intercept or launch missiles, other than during the live fire, we executed the defense plan just the same as we would have executed during the war,” said Yungman. “We were always at the highest alert.”

Yungman said he has more confidence in the defense system having watched it evolve from the concept through the exercise to the live fire, when the inoperability of the weapon systems was validated.

“Now we can sign it, stamp it, and say we have the capability of two layers of active air defense,” said Yungman.

The successful creation of the two-tier system defense, which proved to be a vital deterrence during Operation Iraqi Freedom, has helped redesign Theater Ballistic Defense, and is the underpinning for future multi-tiered ADA weapons systems.

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